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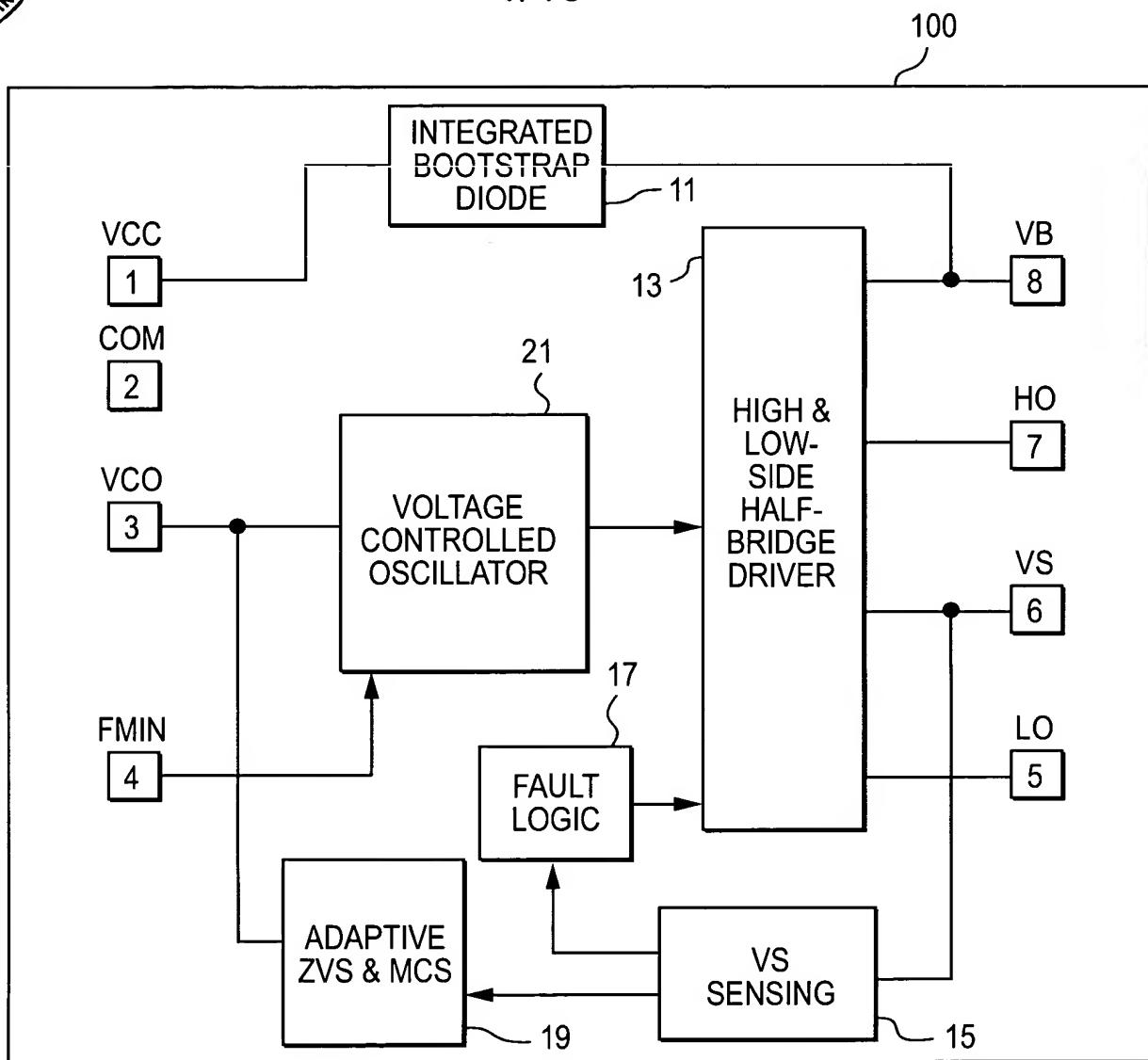


FIG. 1

PIN ASSIGNMENTS	PIN #	SYMBOL	DESCRIPTION
VCC [1]	1	VCC	SUPPLY VOLTAGE
COM [2]	2	COM	IC POWER & SIGNAL GROUND
VCO [3]	3	VCO	VOLTAGE CONTROLLED OSCILLATOR INPUT
FMIN [4]	4	FMIN	MINIMUM FREQUENCY SETTING
	5	LO	LOW-SIDE GATE DRIVER OUTPUT
	6	VS	HIGH-SIDE FLOATING RETURN
	7	HO	HIGH-SIDE GATE DRIVER OUTPUT
	8	VB	HIGH-SIDE GATE DRIVER FLOATING SUPPLY

FIG. 2



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200

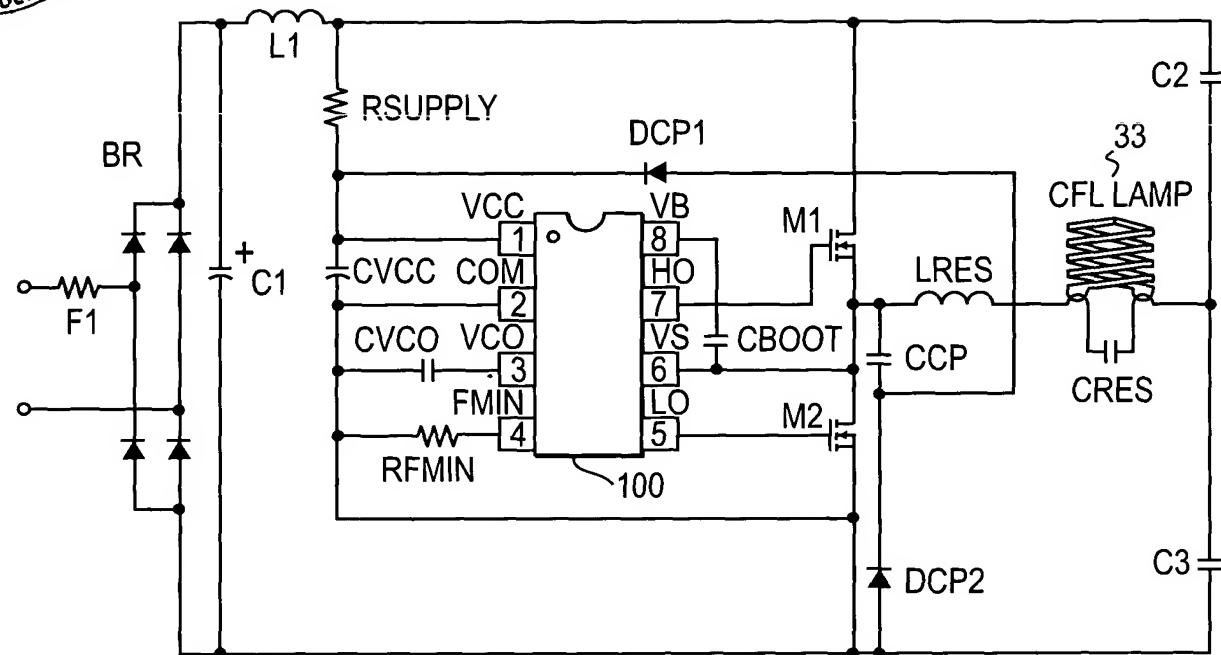


FIG. 3

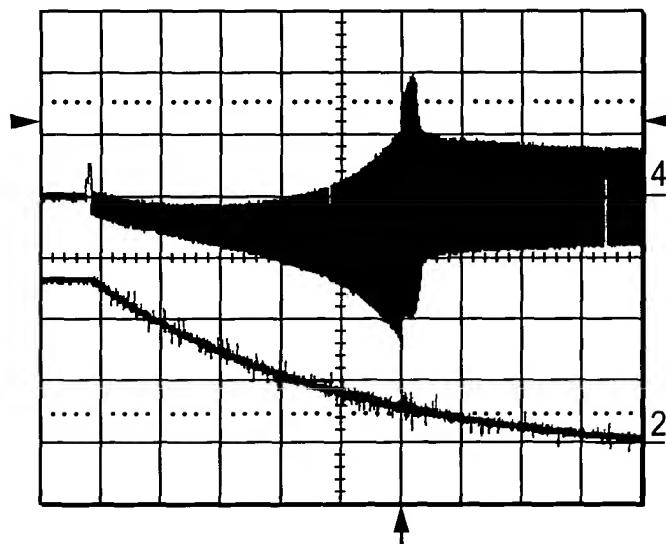


FIG. 4



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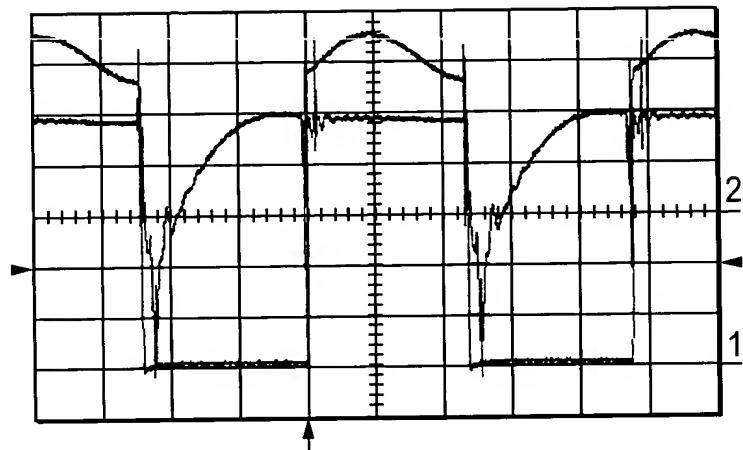


FIG. 5

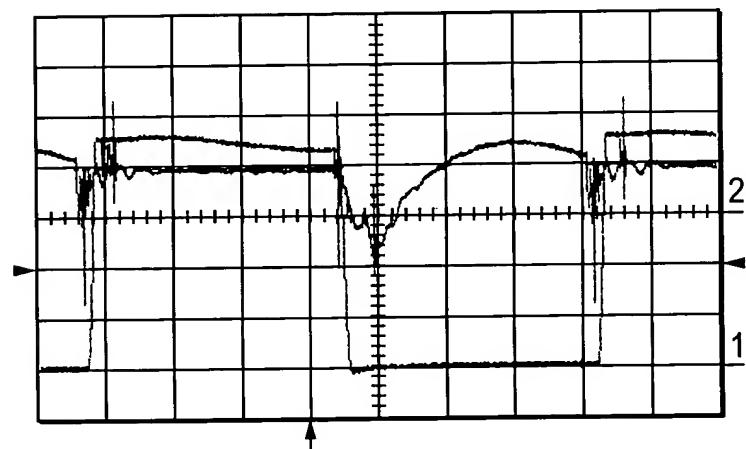
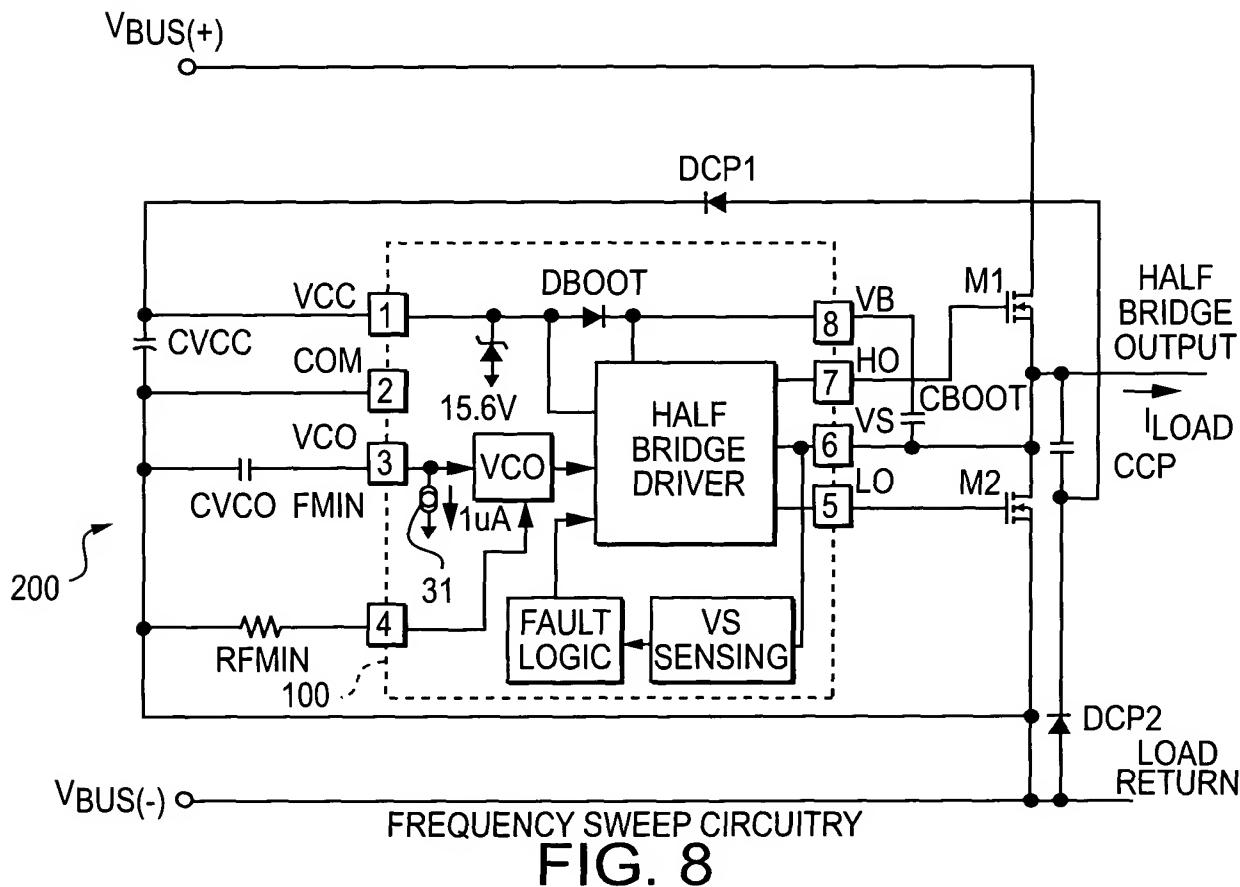
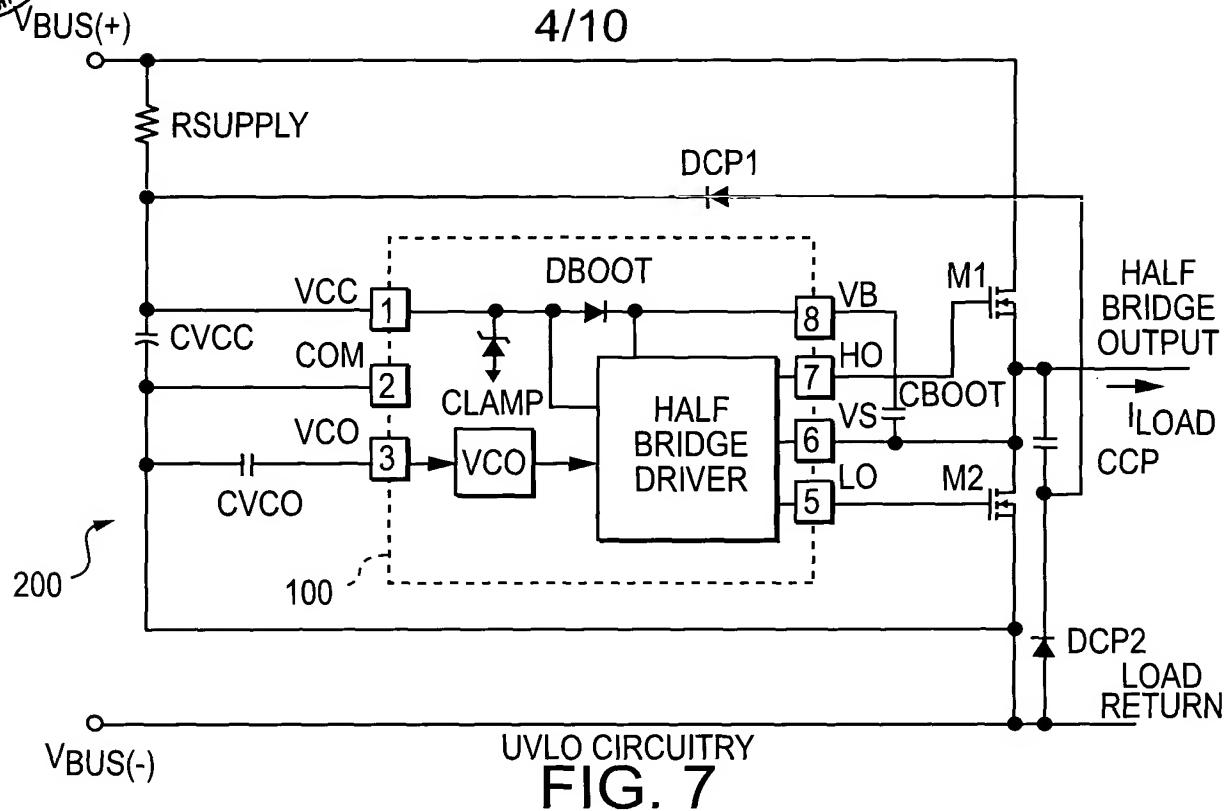


FIG. 6



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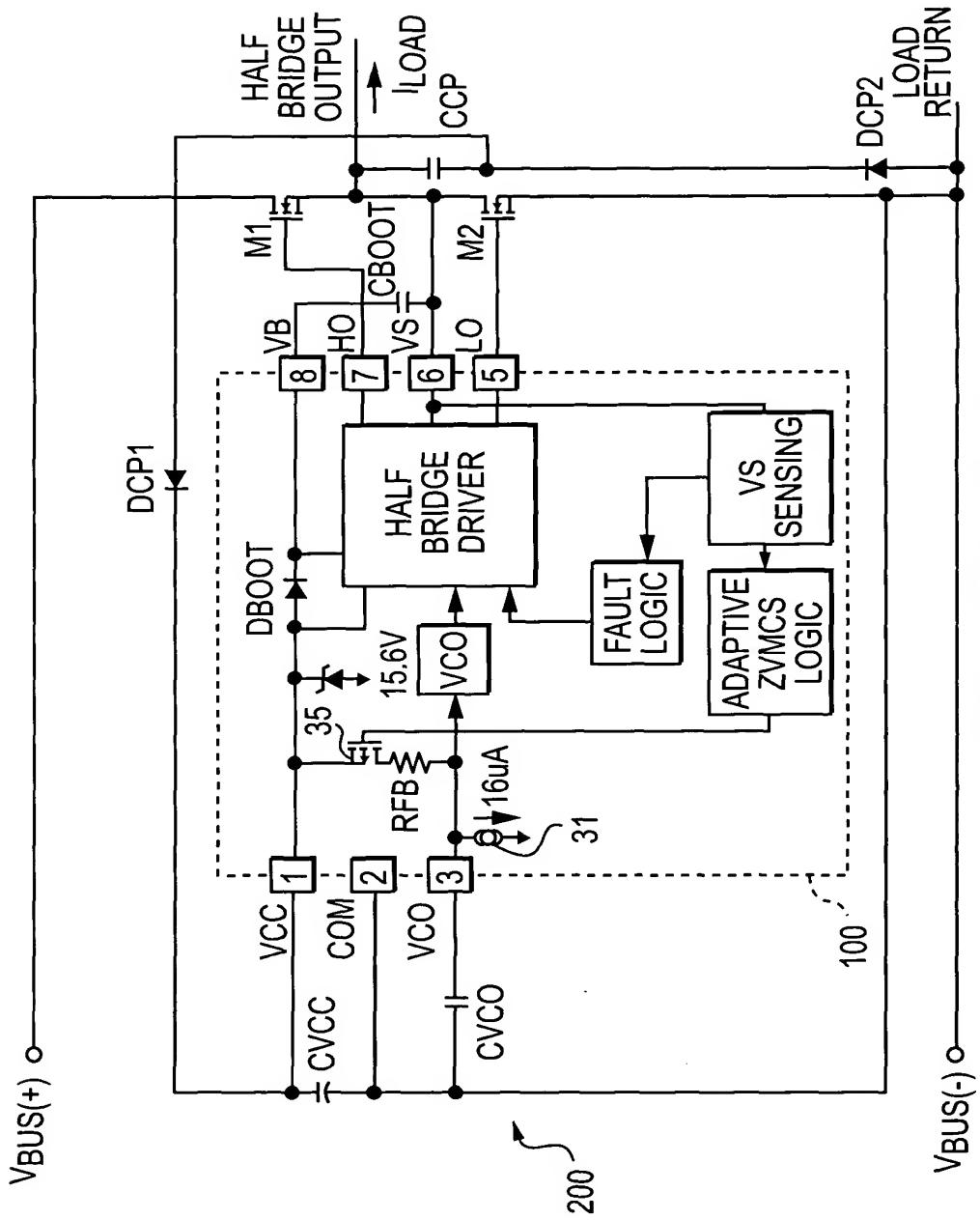


FIG. 9

ADAPTIVE Z/MCS CIRCUITRY



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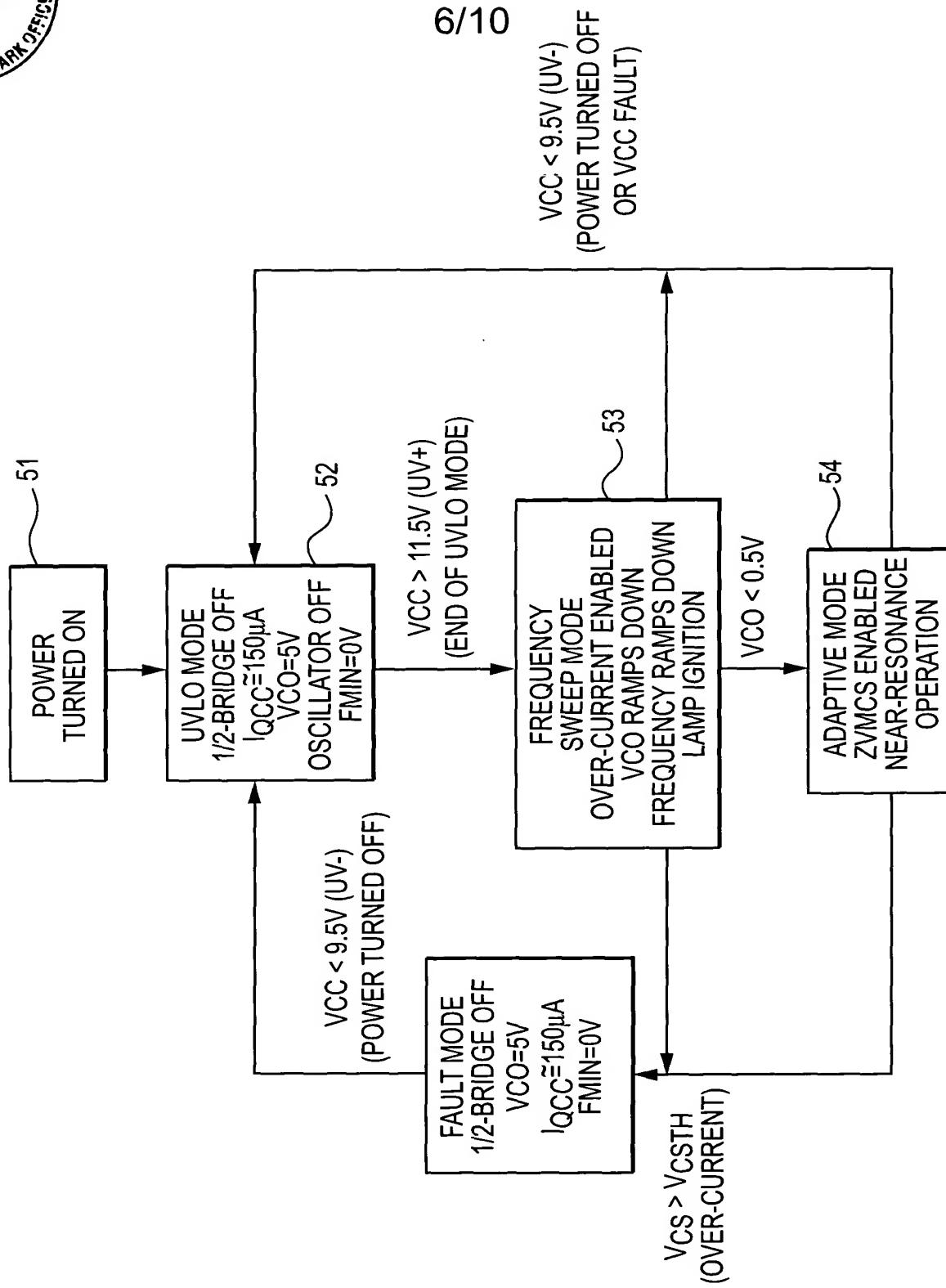


FIG. 10



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TABLE 1

RECOMMENDED OPERATING CONDITIONS
FOR PROPER OPERATION THE DEVICE SHOULD BE USED WITHIN THE RECOMMENDED CONDITIONS.

SYMBOL	DEFINITION		MIN	MAX	UNITS
VBS	HIGH-SIDE FLOATING SUPPLY VOLTAGE	VCC - 0.7	VCLAMP		
VS	STEADY STATE HIGH-SIDE FLOATING SUPPLY OFFSET VOLTAGE	-1	600	V	
VCC	SUPPLY VOLTAGE	VCCUV+	VCLAMP		
ICC	SUPPLY CURRENT	NOTE 2	10	mA	
RFMIN	MINIMUM FREQUENCY SETTING RESISTANCE	10	100	kΩ	
VVCO	VCO PIN VOLTAGE	0	5	V	
TJ	JUNCTION TEMPERATURE	-25	125	°C	

NOTE 2: ENOUGH CURRENT SHOULD BE SUPPLIED INTO THE VCC PIN TO KEEP THE INTERNAL 15.6V ZENER CLAMP DIODE ON THIS PIN REGULATING ITS VOLTAGE, VCLAMP.



TABLE 2

ABSOLUTE MAXIMUM RATINGS
 ABSOLUTE MAXIMUM RATINGS INDICATE SUSTAINED LIMITS BEYOND WHICH DAMAGE TO THE DEVICE MAY OCCUR.
 ALL VOLTAGE PARAMETERS ARE ABSOLUTE Voltages REFERENCED TO COM, ALL CURRENTS ARE DEFINED POSITIVE
 INTO ANY LEAD. THE THERMAL RESISTANCE AND POWER DISSIPATION RATINGS ARE MEASURED UNDER BOARD
 MOUNTED AND STILL AIR CONDITIONS.

SYMBOL	DEFINITION	MIN	MAX	UNITS
V_B	HIGH-SIDE FLOATING SUPPLY VOLTAGE	-0.3	625	
V_S	HIGH-SIDE FLOATING SUPPLY OFFSET VOLTAGE	$V_B - 25$	$V_B + 0.3$	V
V_{HO}	HIGH-SIDE FLOATING OUTPUT VOLTAGE	$V_S - 0.3$	$V_B + 0.3$	
V_{LO}	LOW-SIDE OUTPUT VOLTAGE	-0.3	$V_{CC} + 0.3$	
I_{OMAX}	MAXIMUM ALLOWABLE OUTPUT CURRENT (HO, LO) DUE TO EXTERNAL POWER TRANSISTOR MILLER EFFECT	-500	500	mA
V_{VCO}	VOLTAGE CONTROLLED OSCILLATOR INPUT VOLTAGE	-0.3	$V_{CC} + 0.3$	V
I_{CC}	SUPPLY CURRENT (NOTE 1)	-20	20	mA
dV/dt	ALLOWABLE OFFSET VOLTAGE SLEW RATE	-50	50	V/ns
P_D	PACKAGE POWER DISSIPATION @ $T_A \leq +25^\circ C$ $P_D = (T_{JMAX}-T_A)/R_{\theta JA}$	(8-PIN DIP) ---	1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	(8-PIN SOIC) ---	0.625	
T_J	JUNCTION TEMPERATURE	(8-PIN DIP) ---	125	°C/W
T_S	STORAGE TEMPERATURE	(8-PIN SOIC) ---	200	
T_L	LEAD TEMPERATURE (SOLDERING, 10 SECONDS)	---	300	°C

NOTE 1: THIS IC CONTAINS A ZENER CLAMP STRUCTURE BETWEEN THE CHIP V_{CC} AND COM, WHICH HAS A NOMINAL BREAKDOWN VOLTAGE OF 15.6V. PLEASE NOTE THAT THIS SUPPLY PIN SHOULD NOT BE DRIVEN BY A DC, LOW IMPEDANCE POWER SOURCE GREATER THAN THE VCLAMP SPECIFIED IN THE ELECTRICAL CHARACTERISTICS SECTION.



TABLE 3A
TABLE 3B

TABLE 3
TABLE 3A

ELECTRICAL CHARACTERISTICS
 $V_{CC} = V_{BS} = V_{BIAS} = 14V \pm 0.25$, $C_{LO} = C_{HO} = 1000 \text{ pF}$, $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED.

SUPPLY CHARACTERISTICS	SUPPLY	DEFINITION	MIN	TYPE	MAX	UNITS	TEST CONDITIONS
VCCUV+	VCC SUPPLY UNDERVOLTAGE POSITIVE GOING THRESHOLD	10.5	11.5	12.5		V	VCC RISING FROM 0V
VCCUV-	VCC SUPPLY UNDERVOLTAGE NEGATIVE GOING THRESHOLD	8.5	9.5	10.5		V	VCC FALLING FROM 14V
VUVHYS	VCC SUPPLY UNDERVOLTAGE LOCKOUT HYSTERESIS	1.5	2.0	3.0			
IQCCUV	UVLO MODE QUIESCENT CURRENT	50	120	200		μA	VCC=11V
IQCCFLT	FAULT-MODE QUIESCENT CURRENT	---	180	---			
IQCC	QUIESCENT VCC SUPPLY CURRENT	---	1.8	---		mA	VCC=14V
ICC50k	VCC SUPPLY CURRENT, $f = 50\text{kHz}$	---	1.8	---			
VCLAMP	VCC ZENER CLAMP VOLTAGE	14.5	15.6	16.5	V	$\text{ICC}=10\text{mA}$	
FLOATING SUPPLY CHARACTERISTICS							
IQB50	QUIESCENT VBS SUPPLY CURRENT	-1	0	5		μA	$V_{HO} = V_S$
IQBS1	QUIESCENT VBS SUPPLY CURRENT	---	28	---		μA	$V_{HO} = V_B$
VBSMIN	MINIMUM REQUIRED VBS VOLTAGE FOR PROPER HO FUNCTIONALITY	---	2.5	---	V		
IK	OFFSET SUPPLY LEAKAGE CURRENT	---	---	50	μA	$V_B = V_S$	600V

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OSCILLATOR I/O CHARACTERISTICS					
FVCO(MIN)	MINIMUM OSCILLATOR FREQUENCY	---	30	---	VCO=0V, RFMIN=39K
FVCO(MAX)	MAXIMUM OSCILLATOR FREQUENCY	---	110	---	VCO=5V, FRMIN=39K
D	OSCILLATOR DUTY CYCLE	---	50	---	%
TDLO	LO OUTPUT DEADTIME	---	1.2	---	RFMIN=39K
TDHO	HO OUTPUT DEADTIME	---	1.2	---	RFMIN=39K
IVCOPH	PREHEAT MODE & FREQUENCY SWEEP MODE VCO PIN DISCHARGE CURRENT	---	1.0	---	CVO<VCC
IVCOADPT	ADAPTIVE MODE VCO PIN DISCHARGE CURRENT	---	16.0	---	µA
IVCOFLT	FAULT MODE & UVLO MODE VCO PIN VOLTAGE	---	5	---	V
GATE DRIVER/OUTPUT CHARACTERISTICS					
VOL	LOW LEVEL OUTPUT VOLTAGE (HO OR LO)	---	---	100	mV
VHL	HIGH LEVEL OUTPUT VOLTAGE (HO OR LO)	---	---	100	mV
TRISE	TURN ON RISE TIME	---	---	150	NS
TFALL	TURN OFF FALL TIME	---	---	100	NS
PROTECTION CHARACTERISTICS					
VCSTH	PEAK OVER CURRENT LATCH THRESHOLD VOLTAGE	---	5	---	V
MINIMUM FREQUENCY SETTING CHARACTERISTICS					
VFMIN	FMIN PIN VOLTAGE DURING NORMAL OPERATION	---	5.1	---	V
VFMINFLT	FMIN PIN VOLTAGE DURING FAULT MODE	---	0.0	---	V
					VCS>VCSTH

TABLE 3B